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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,090	05/10/2001	Hirokazu Yamagata	12732-037001	5147
26171	7590	12/28/2005	EXAMINER	
FISH & RICHARDSON P.C. P.O. BOX 1022. MINNEAPOLIS, MN 55440-1022			CLEVELAND, MICHAEL B	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/852,090

Applicant(s)

YAMAGATA ET AL.

Examiner

Michael Cleveland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,6,18,19,23,24,28,29,33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5,6,18,19,23,24,28,29,33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Applicant's arguments, see p. 3 of the Appeal Brief, filed 10/26/2005, with respect to the rejection(s) of claim(s) 5-6, 18-19, 23-24, 28-29, and 33-34 under 35 USC 103 have been fully considered and are unconvincing because Eida '929 cites Sato '169. However, upon further consideration, Sato '169 was not specifically described by the examiner, and it is a superior reference to Eida '929. Therefore, the prior rejections have been withdrawn, and prosecution is reopened based upon the teachings of Sato '169.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-6, 18-19, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (JP 7-142169, hereafter '169) in view of Kobori et al. (U.S. Patent 6,285,039, hereafter '039). (Ueda et al. (U.S. Patent 6,468,676, hereafter '676) is cited as evidence regarding claims 23-24.)

Claims 5-6 and 18-19: '169 teaches a method of manufacturing an active matrix light emitting device [0048], comprising:

forming a green luminous layer (5e) comprising a first luminous material (E2, hereafter Alq) over a substrate by evaporation [0068];

forming a red luminous layer (5f) comprising a first luminous material (Alq) and a dopant (R1) over a substrate (1) by evaporation [0068];

forming a green luminous layer (5g) comprising the first luminous material (Alq) over the red luminous layer by evaporation [0068];

forming a blue luminous layer (4) comprising a second luminous material to be overlapped with the red luminous layer and the green luminous layer [0068];

forming a hole injection layer (3) [0068], which may be a conductive polymer [0014];

wherein white light is emitted from the red, green, and blue luminous layers [0006].

Claim 5: To produce a layer of Alq with a red dopant and then a layer of Alq alone, the evaporation of the dopant must be stopped. Thus, the evaporation of the doped layer must proceed either 1) by stopping the evaporation of the dopant while continuing the evaporation of the host Alq material or 2) by stopping the evaporation of both materials and restarting evaporation of the host. '169 does not explicitly state which possibility is used. *Mueller Brass Co. v. Reading Industries* (176 USPQ 361, p. 369) states that in judging the level of ordinary skill in the art, it is the level of those who normally attack the problems of the art that counts; persons who do most of the problem solving in involved art are graduate engineers; as such they are chargeable with general knowledge concerning principles of engineering outside the narrow field involved and with the skills, ingenuity, and competence of the average professional engineer. One of ordinary skill in the art would have understood that stopping and restarting the evaporation of the host organic material would necessarily have taken longer than merely continuing the evaporation, and that an increase in the time of production would necessarily have reduced the number of light-emitting devices manufactured per unit time (production rate). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have continued the evaporation of the host organic material while beginning the evaporation of the dopant in order to have minimized the process time, and therefore maximized the production rate.

Claim 6: Likewise, to produce a layer of Alq and then a layer of Alq with a red dopant, the evaporation of the dopant must be started. Thus, the evaporation of the doped layer must proceed either 1) by continuing the evaporation of the host Alq material and beginning evaporation of the dopant or 2) by stopping the evaporation of the host material and restarting it with evaporation of the dopant. '169 does not explicitly state which possibility is used. *Mueller Brass Co. v. Reading Industries* (176 USPQ 361, p. 369) states that in judging the level of ordinary skill in the art, it is the level of those who normally attack the problems of the art that counts; persons who do most of the problem solving in involved art are graduate engineers; as such they are chargeable with general knowledge concerning principles of engineering outside the narrow field involved and with the skills, ingenuity, and competence of the average professional engineer. One of ordinary skill in the art would have understood that stopping and

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restarting the evaporation of the host organic material would necessarily have taken longer than merely continuing the evaporation, and that an increase in the time of production would necessarily have reduced the number of light-emitting devices manufactured per unit time (production rate). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have continued the evaporation of the host organic material while beginning the evaporation of the dopant in order to have minimized the process time, and therefore maximized the production rate.

Claims 5 and 18: The references do not teach forming a red luminous layer of an organic material and a dopant by evaporation and then forming a green luminous layer by stopping the evaporation of the dopant while continuing the evaporation of the organic material. However, the examiner takes Official Notice that it is well known that the layers of light-emitting devices may be deposited from cathode to anode instead of anode to cathode. See, e.g., '039, col. 33, lines 33-35. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have reversed the process described above: depositing a cathode, then evaporating then the red layer, the green layer, the blue layer, and the hole-transporting layer through to the anode with a reasonable expectation of success and with the expectation of similar results because '039 teaches that cathode-to-anode construction is an operable method of constructing light-emitting devices. It would have been obvious to have deposited the dopant by stopped the evaporation of the dopant at the desired red layer thickness while continuing the evaporation of the Alq to have maximized production rate for reasons analogous to the discussion of starting evaporation of the dopant, above.

Claims 23 and 24: DCM1 is an organic fluorescent material [0064]. (See also '676, col. 34, lines 18-35).

4. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato '169, as applied to claims 5-6 above, and further in view of Singh et al. (U.S. Patent 6,228,228, hereafter '228). (Thompson et al. (U.S. Patent 6,413,656, hereafter '656) is cited as evidence.)

'169 is discussed above. It does not teach that the dopant in the red layer is phosphorescent.

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However, '228 demonstrates that red light-emitting layers may be formed by doping Alq with PtOEP (col. 10, lines 26-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used PtOEP as a dopant to form a red EL layer instead of DCM as disclosed by '169 with a reasonable expectation of success and with the expectation of similar results because '228 demonstrates the art recognized suitability of Alq/PtOEP layers as red EL layers, and the selection of a known material based on its suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '656 teaches that PtOEP is phosphorescent (col. 4, lines 18-22).

5. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato '169, as applied to claims 5-6 above, and further in view of Yamada et al. (U.S. Patent 6,215,462, hereafter '462).

'169 is discussed above. It discusses some uses of the EL devices [0080], but does not specifically teach that the EL device is incorporated into a video camera, digital camera, goggle display, car navigation system, sound reproduction system, notebook PC, game apparatus, portable information terminal or image playback device.

'462 teaches that organic EL devices are useful as the displays in the image playback portions of cameras (col. 4, lines 46-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the EL device of '929 and '039 into an image playback device with a reasonable expectation of success because '462 teaches that organic EL devices may be used in image playback devices (i.e., a specific machine requiring a display interface between man and machine).

Response to Arguments

6. Applicant's arguments filed 10/26/2005 have been fully considered but they are not persuasive.

Applicant argues that continuing evaporation would not necessarily have led to increased production if a second chamber were available and the red layer and the green layer were applied in the separate chambers in series. The argument is unconvincing because if two chambers were

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available, the red and green sources could have been provided in both chambers. Therefore, the second device could have been produced in the second chamber in the same amount of time as that in the first chamber, and therefore, the parallel simultaneous creation of identical devices in the two chambers would necessarily have produced two devices in less time than performing the deposition steps in series in the two chambers because the second device would have started and therefore finished processing later in Applicant's proposed process.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael Cleveland
Primary Examiner
Art Unit 1762

12/20/2005